AMENDMENT TO THE CLAIMS

The following is a detailed listing of all claims that are, or were, in the Application.

1. (Amended) A computer system for fault-tolerant distributed collaborative computing, the system comprising:

a plurality of server computers connected to a plurality of client computers via a global-area computer network;

a high-speed direct connection link connecting the plurality of server computers; and

a computer program executable by the server computers, wherein the computer program comprises computer instructions for:

conducting an on-line conference among an arbitrary number of the client computers connected to an arbitrary number of the server computers via the global-area network and the high-speed direct connection link;

~~detecting a failure of one of the server computers handling the on-line conference;~~

monitoring for a respective heartbeat message from each of the server computers involved in the on-line conference;

if no respective heartbeat message is received from one of the server computers involved in the on-line conference, disconnecting ~~the failed~~ that server computer from the on-line conference;

connecting another of the server computers to the on-line conference; and

resuming the on-line conference.

2. (Original) The computer system of claim 1, wherein the computer program further comprises computer instructions for:

periodically replicating state information among processes executed by the server computers to conduct the on-line conference;

detecting a failure of one of the process;

spawning a new process on the server computers; and

loading the replicated state information on the new process.

3. (Original) The computer system of claim 2, wherein the processes whose state is replicated maintain information about the on-line conference.

4. (Original) The computer system of claim 2, wherein the processes whose state is replicated handle communications between one of the client computers and one of the server computers.

5. (Original) The computer system of claim 2, wherein the processes whose state is replicated control access to a document shared among participants of the on-line conference.

6. (Original) The computer system of claim 2, wherein the processes whose state is replicated control execution of an application shared among participants of the on-line conference.

7. (Amended) A method of operating a distributed collaborative computing system comprising a plurality of server computers, the method comprising:

conducting an on-line conference among an arbitrary number of the client computers connected to an arbitrary number of the server computers via the global-area network and the high-speed direct connection link;

~~detecting a failure of one of the server computers handling the on-line conference;~~

monitoring for a respective heartbeat message from each of the server computers involved in the on-line conference;

if no respective heartbeat message is received from one of the server computers involved in the on-line conference, disconnecting ~~the failed~~ that server computer from the on-line conference;

connecting another of the server computers to the on-line conference; and

resuming the on-line conference.

8. (Original) The method of claim 7, further comprising:

periodically replicating state information among processes executed by the server computers to conduct the on-line conference;

detecting a failure of one of the process;

spawning a new process on the server computers; and

loading the replicated state information on the new process.

9. (Original) The method of claim 8, wherein the processes whose state is replicated maintain information about the on-line conference.

10. (Original) The method of claim 8, wherein the processes whose state is replicated handle communications between one of the client computers and one of the server computers.

11. (Original) The method of claim 8, wherein the processes whose state is replicated control access to a document shared among participants of the on-line conference.

12. (Original) The method of claim 8, wherein the processes whose state is replicated control execution of an application shared among participants of the on-line conference.

13. (Amended) A computer-readable storage medium storing a computer program executable by a plurality of server computers, the computer program comprising computer instructions for:

conducting an on-line conference among an arbitrary number of the client computers connected to an arbitrary number of the server computers via the global-area network and the high-speed direct connection link;

~~detecting a failure of one of the server computers handling the on-line conference;~~

monitoring for a respective heartbeat message from each of the server computers involved in the on-line conference;

if no respective heartbeat message is received from one of the server computers involved in the on-line conference, disconnecting ~~the failed~~ that server computer from the on-line conference;

connecting another of the server computers to the on-line conference; and

resuming the on-line conference.

14. (Original) The computer-readable storage medium of claim 13, wherein the computer program further comprises computer instructions for:

periodically replicating state information among processes executed by the server computers to conduct the on-line conference;

detecting a failure of one of the process;

spawning a new process on the server computers; and

loading the replicated state information on the new process.

15. (Original) The computer-readable storage medium of claim 14, wherein the processes whose state is replicated maintain information about the on-line conference.

16. (Original) The computer-readable storage medium of claim 14, wherein the processes whose state is replicated handle communications between one of the client computers and one of the server computers.

17. (Original) The computer-readable storage medium of claim 14, wherein the processes whose state is replicated control access to a document shared among participants of the on-line conference.

18. (Original) The computer-readable storage medium of claim 14, wherein the processes whose state is replicated control execution of an application shared among participants of the on-line conference.

19. (New) A method for providing fault-tolerance in a distributed system for collaborative computing having a meeting manager, a plurality of collaboration server computers, and a plurality of application server computers, the method comprising:

conducting an on-line conference among a plurality of a client computers connected to the distributed system via a global-area network, wherein a portion of the collaboration server computers and application server computers are involved in the on-line conference;

detecting a failure of one of the collaboration server computers or application server computers involved in the on-line conference using the meeting manager;

disconnecting the failed collaboration server computer or failed application server computer from the on-line conference;

connecting another of the collaboration server computers or the application server computers not already involved in the on-line conference to the on-line conference as a replacement for the failed collaboration server computer or failed application server computer; and

resuming the on-line conference.

20. (New) The method of claim 19 comprising:

periodically replicating respective state information for a plurality of processes executed by the collaboration server computers or application server computers involved in the on-line conference to conduct the on-line conference;

detecting a failure of one of the processes;

spawning a new process on the collaboration server computers or application server computers involved in the on-line conference as a replacement for the failed process; and

loading the replicated respective state information for the failed process to the new process.

21. (New) The method of claim 19 wherein at least one of the plurality of processes maintains information about the on-line conference.

22. (New) The method claim 19 wherein at least one of the plurality of processes handles communications between one of the client computers and one of the collaboration server computers or application server computers.

23. (New) The method of claim 19 wherein each collaboration server is operable host at least a portion of the on-line conference.

24. (New) The method of claim 19 wherein each application server is operable to support at least one service for the on-line conference.

25. (New) The method of claim 24 wherein the at least one service for the on-line conference comprises one of document viewing, file sharing, video, voice over IP, telephony, polling, chat, and application sharing.

26. (New) The method of claim 25 wherein detecting comprises:

monitoring for a respective heartbeat message from each of the collaboration server computers or application server computers involved in the on-line conference.